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23 June 1995

Federal Communications Commission
1919 "M" Street NW, #814
Washington, DC 20554

DOCKET FILE COPY ORIGINAL

R M 8658

Re: "GSM" Technology for Portable Telephones
Effect on Hearing Aid Users


Reference: Article, PC Magazine, July 1995, page 83 (copy attached)

The referenced article advises that the "GSM" technology for portable telephones is known to interfere with the operation of hearing aids, and possibly with a number of other medical devices.

It is essential that NO TECHNOLOGY be adopted that causes such interference, especially when alternative, non-interfering technologies exist.

My hearing aid is my "bridge to the world", and I would become a virtual recluse, without it. Of course, following the "1995 Mode", I would certainly sue everybody involved, for such unnecessary violation of my rights. This is an AVOIDABLE problem

Sincerely,


George N. McInnis

Copies:

Senator Diane Feinstein
Senator Barbara Boxer
Representative Chris Cox

Senator Bob Dole
Speaker Newt Gingrich

PLEASE DO SOMETHING ! NOW !!

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Bill Machrone

Portable Telephones for Everyone

America's telecommunications industry is teetering on the brink. The FCC has auctioned off billions of dollars' worth of radio spectrum for the industry to offer new wireless services, called PCS (personal communications services). The winners must

now choose the technologies they will use and begin to build the infrastructure of transmitters, switches, and consumer devices. Whatever technology they choose, the system will be digital, with significantly better capacity, compatibility, and privacy.

Europe has had such a system in place for several years. The European standard, GSM, is technologically advanced but for one small problem: It can't be used by hearing-aid wearers. In fact, if hearing-aid wearers come within several feet of a GSM phone, they hear a loud buzzing. If they get closer, the buzz becomes deafening, drowning out even the sound of their own voices.

The problem is well known in Europe. With billions of dollars' worth of infrastructure in place, however, it's too late to change the technology. Modifying the hearing aids isn't a viable solution, either. With the emphasis on small size, light weight, and long battery life, there's virtually no hope for improving the installed base. Even with new hearing aids, the problem cannot be eliminated.

Tragically, hearing aids didn't have to be a problem. GSM is based on a time-division multiple access (TDMA) scheme that causes the cellular phone to send out a pulse of radio-frequency energy 217 times per second. That's what the hearing-aid wearers hear. If the system had been built with another technology, such as CDMA (a lower-power, spread-spectrum technology), or at nonaudible frequencies, the interference would have been greatly reduced.

The chairman of GSM MoU, the oversight group for GSM vendors, has written to FCC chairman Reed Hundt to address the concerns: "Some of the research suggests that a small percentage of all hearing-impaired persons use old, inferior-quality hearing aids, and therefore may be unable to use high-power

digital wireless telephones, whether they be CDMA, GSM, or AMPS-D." The letter suggests that existing hearing aids can be upgraded or replaced but doesn't address the attendant cost issues.

Given what we know about the potential effect of GSM on more than 6 million U.S. hearing-aid wearers, it's unconscionable to pursue this option. Yet BellSouth and Pacific Bell have decided to deploy GSM.

GSM has other problems, too. The power level, combined with the fast rise time of pulses, reportedly causes problems with electronic devices. Sweden bans the phones from its hospitals because they reportedly interfere with pacemakers and electric wheelchairs. A report from an Australian newspaper claims that a GSM car phone set off the car's airbag. One potential plus: GSM phones are said to be able to reset a Parisian taxi meter to zero.

GSM may be a poor choice for mobile computing. I wonder about the potential for confusing the sensitive innards of notebooks or interfering with emergency communications equipment.

American telephone companies are not without alternatives to GSM. NA-TDMA runs at lower power and is tailored to North America. CDMA has been slow in emerg-

ing from the lab but should be far better for the mixed voice and data services critical to mobile executives.

These technology decisions are irrevocable once the building begins. Cellular phones have always been incompatible with hearing aids; let's not do the deaf another disservice. If you're not concerned about the plight of the hearing-impaired, look at your own situation with enlightened self-interest. If you believe that GSM is not the right choice, let the FCC know (Federal Communications Commission, 1919 M St. NW, #814, Washington, DC 20554). □



PCS telephones will be terrific—as long as you're not hearing-impaired.